

Work Order ID 50701

July 21, 2009 10:01:43 AM

Page 1

Item ID: D212-664-107TRN

Accept

Revision ID: A

Item Name: Crosstube Turning Detail

Start Date: 07/21/2009 Start Qty: 1.00

Required Date: 07/31/2009 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals: Process Plan: *mf*

Date: *09-07-21* Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D212-664-147

Rev A

100

0.00



Mori Seiki

Mori Seiki CNC Lathe Large

MORI SEIKI CNC LATHE LARGE

Memo

0.00

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA705112-Turn first side as per Folio FA113113-File down transition lines smooth.

mf 09/08/01

1

110

0.00



QC

Quality Control

QC1- Inspect dimensions to dimension sheet

Memo

0.00

mf 09/08/02

1

120

0.00



Mori Seiki

Mori Seiki CNC Lathe Large

MORI SEIKI CNC LATHE LARGE

Memo

0.00

1-Turn second side as per Folio FA705112-File down transition lines smooth.
2-
3- Remove plugs and sand

mf 09/08/02

1

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Item ID: D212-664-107TRN

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Setup Start



Revision ID: A

Stop



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Required Date: 07/31/2009 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan:

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

130

QC1 - Inspect dimensions to dimension sheet

0.00



0.00 *ml 09/08/02*

QC

Memo

Quality Control

1 *Ø*

140

QC8 - Inspect parts - second check

0.00



0.00

QC

Memo

Quality Control

1 *Ø* - *AWM 9-8-04*

150

Crosstubes Chemical Conversion

0.00



0.00

HandFXtube

Memo

Hand Finishing Crosstubes

1 *Ø* - *AWM 9-8-4*

Work Order ID 50701

July 21, 2009 10:01:43 AM



Page 3

Item ID: D212-664-107TRN

Accept



Setup Start



Revision ID: A

Stop



Item Name: Crosstube Turning Detail

Start Date: 07/21/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 07/31/2009 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan:

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

160

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

1 1/2 9-8-4

170

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and stock in kanban rack Location:

X-TUBE CELL

1 0 - Avg 9.8-4

180

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

MF 09-08-04

Picklist Print

Page 1

July 21, 2009 10:01:43 AM

Work Order ID: 50701



Parent Item: D212-664-107TRNRevA



Parent Item Name: Crosstube Turning Detail

Start Date: 07/21/2009

Required Date: 07/31/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D6019-128RevA		Manufactured	No			110	Each	22.0000	1.0000			
Crosstube Material												

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

LG

22

29369

7

32310

15

32310

1 ml 09/08/01

DART AEROSPACE LTD		Work Order: 50701
Description: Crosstube Assembly (205/212/412 Low Fwd)		Part Number: D212-664-147
Inspection Dwg: D212-664-147 Rev: A		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

Inspection Sheet	Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.313	+/-0.010	0.303	—			
	2.360	+0.005/-0.000	2.365	—			
	2.360	+0.005/-0.000	2.365	—			
	2.366	+0.005/-0.000	2.371	—			
	2.473	+0.005/-0.000	2.478	—			
	2.573	+0.005/-0.000	2.574	—			
	2.673	+0.005/-0.000	2.677	—			
	2.750	+0.005/-0.000	2.751	—			matl stock
	2.750	+0.005/-0.000	2.751	—			matl stock
SIDE B	0.313	+/-0.010	0.310	—			
	2.360	+0.005/-0.000	2.365	—			
	2.360	+0.005/-0.000	2.365	—			
	2.366	+0.005/-0.000	2.371	—			
	2.473	+0.005/-0.000	2.478	—			
	2.573	+0.005/-0.000	2.574	—			
	2.673	+0.005/-0.000	2.677	—			
	2.750	+0.005/-0.000	2.751	—			matl stock
	2.750	+0.005/-0.000	2.751	—			matl stock
	0.126.53	+/-0.020	126.540	—			

Measured by: <i>and</i>	Audited by: <i>AWM</i>	Prototype Approval:	N/A
Date: 09/08/02	Date: 9-8-02	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	08.11.07	New Issue (P/O D212-664-107)	KJ/EC <i>g</i>	<i>DS</i>

PARTS LIST:

Qty	Part Number	Description
X	D212-664-147	CROSSTUBE ASSEMBLY (205/212/412 LOW FWD)
1	D6019-128	CROSSTUBE
2	D2893-1	SUPPORT
4	D3595-063-450	RUBBER CUSHION
2	D3659-1	CUFF
4	MS21920-25	CLAMP (OR MS21920-26)
44	CR3212-4-06	RIVET (OR M7885/3-4-06)
A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
A/R	SIKAFLEX-241/-291	SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6019-128
FINISHED LENGTH = 126.53±0.020 (BEFORE BENDING/TRIMMING)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) PART IS SYMMETRIC ABOUT CENTERLINE.
- 6) WHEN MACHINING TAPER, RUN-OFF PART AT STOCK. BLEND OUT EDGE LONGITUDINALLY,
TRANSITION SHOULD BE SMOOTH.
- 7) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE
TO BENDING IS 6% BASED ON O.D., EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED.
- 8) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 9) SCRIBE DART PART NUMBER AND BATCH NUMBER ON INNER SURFACE OF TUBE WITH A
VIBRATING STYLUS.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) APPLY A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1
THAT WILL BE IN CONTACT WITH THE CROSSTUBE. LET CURE FOR 12 HOURS AFTER
INSTALLATION AND PRIOR TO PACKAGING.
- 12) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE
D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE
CROSSTUBE SUPPORT.
- 13) TORQUE CLAMPS 80 TO 100 IN.-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY
AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
- 14) INSTALL D3659-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT, WITH A
LAYER OF SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN
CUFF AND CROSSTUBE. SEAL EDGE OF CUFF TO ENSURE NO GAPS.
- 15) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.

50701
MF
09-07-21

DEO ATTACHED

RELEASED
07.09.24

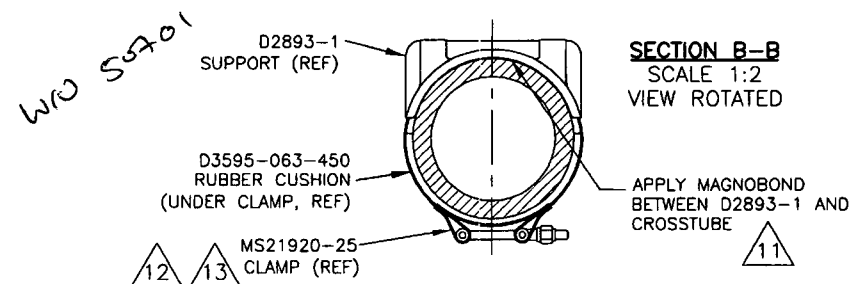
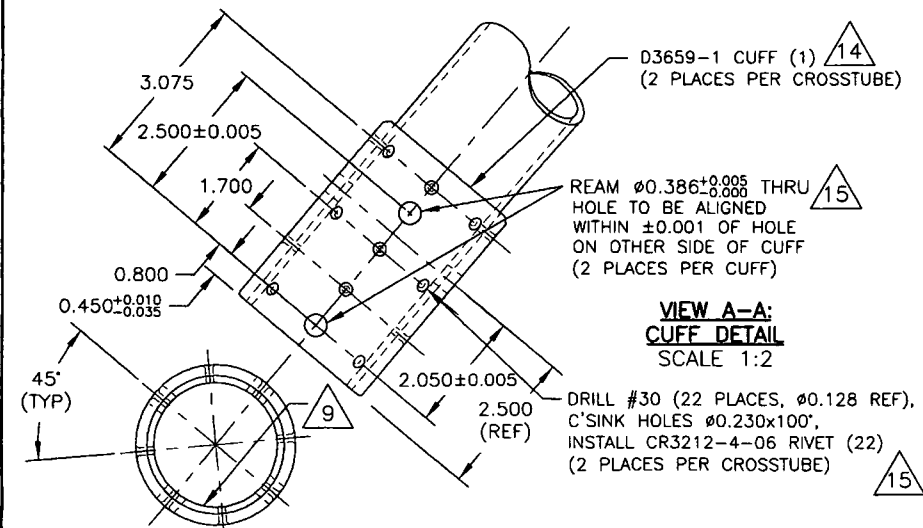
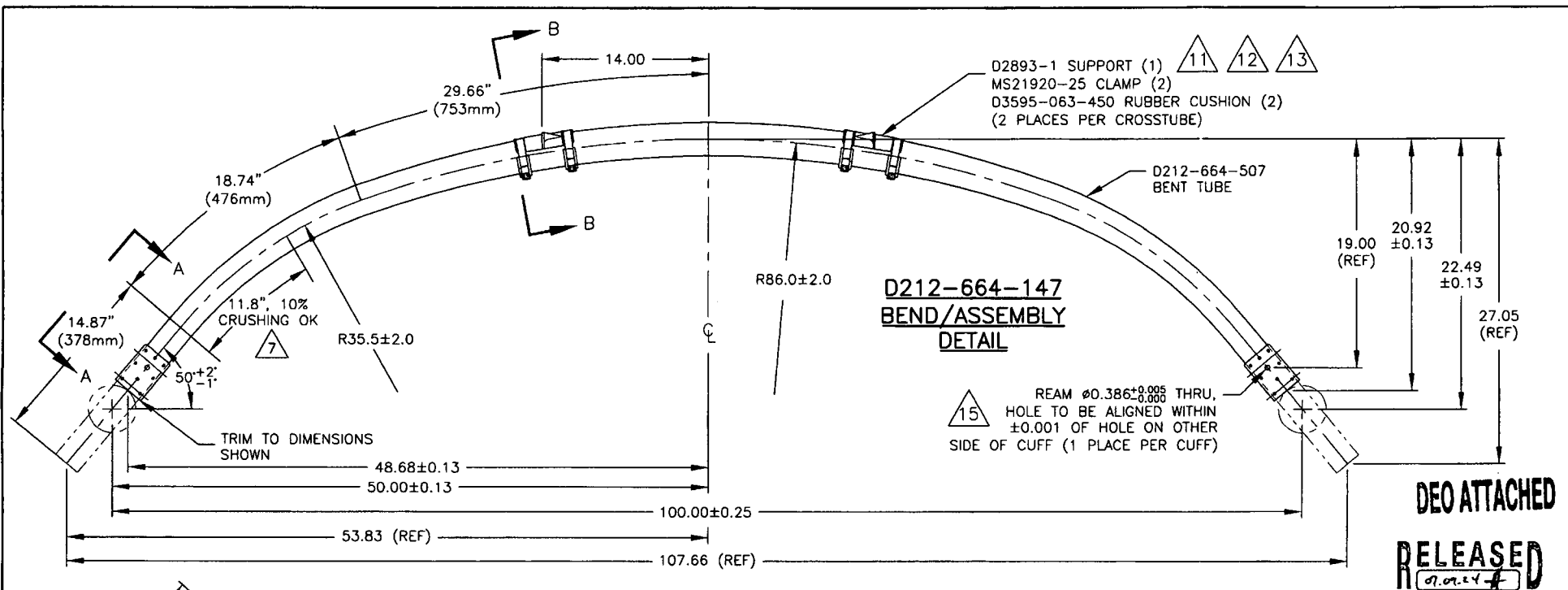
A		07.07.07	NEW ISSUE
DESIGN	gp	DRAWN BY	gp
CHECKED	pt	APPROVED	pt
DATE	07.07.07	TITLE	CROSSTUBE (205/212/412 LOW FWD) NTS

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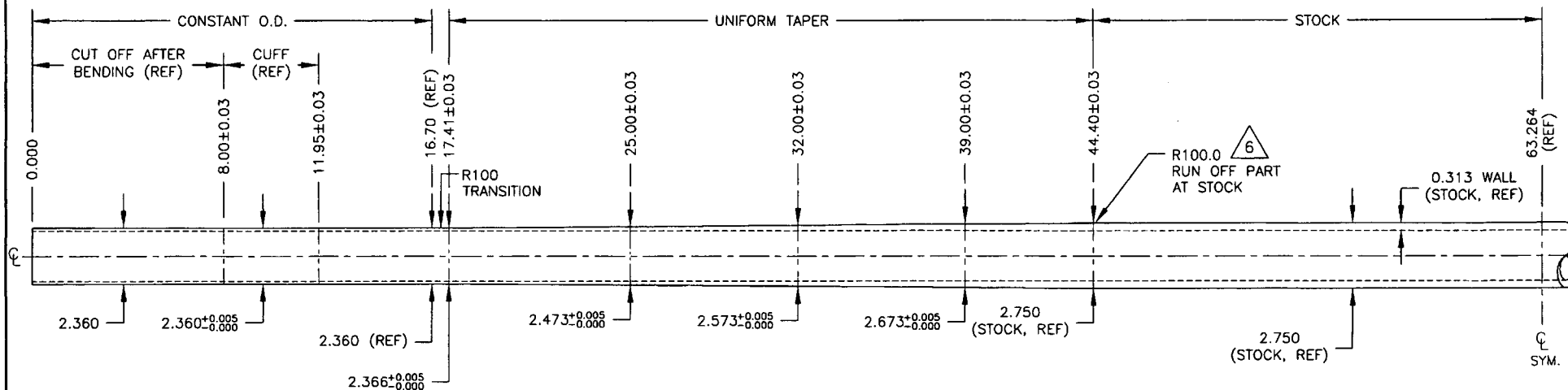
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HAWKESBURY, ONTARIO, CANADA

DRAWING NO. D212-664-147
REV. A
SHEET 1 OF 3
SCALE



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		DATE	07.07.07			D212-664-147	SHEET 2 OF 3
						CROSSTUBE (205/212/412 LOW FWD)	SCALE 1:8



D212-664-147 MACHINING DETAIL

RELEASED
07.07.24

DEO ATTACHED

W/O 50701

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DATE 07.07.07		TITLE CROSSTUBE (205/212/412 LOW FWD)		SCALE 1:4	

DRAWING NO. D212-664-147	TITLE CROSSTUBE	REV. A	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D212-664-147-A-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>[Signature]</i>	CHECKED <i>PA</i>	MFG. APPR. <i>E</i>	APPROVED <i>[Signature]</i>		DE APPR. <i>[Signature]</i>		
DATE 09.05.01	DATE 09.06.15	DATE 09.06.15	DATE 09/06/16		DATE 09/06/16		

CHANGE:

ADD THE FOLLOWING CROSSTUBE ASSEMBLY:

Part Number	Description
D212-664-147B	CROSSTUBE ASSEMBLY (214 LOW FWD)

THE D212-664-147B CROSSTUBE HAS THE SAME PARTS LIST AS THE D212-664-147 CROSSTUBE. HOWEVER, INSTALL THE SUPPORTS AS SHOWN IN FIGURE 1 OF THIS ENGINEERING ORDER. THE NEW KIT IS OTHERWISE ASSEMBLED PER THE D212-664-147 CROSSTUBE.

RELEASED
09/06/22

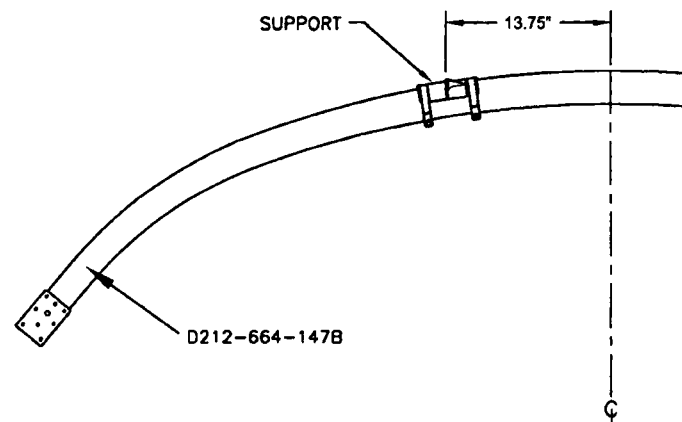


FIGURE 1 - SUPPORT INSTALLATION